UCA

Technical Evaluation of [redacted] Proposal No. [redacted]
for the
First Phase of the Relocation of HST Flight Operations to the [redacted]

Introduction

The following paragraphs constitute a technical evaluation of [redacted] proposal No. [redacted] for the first phase of activities associated with the relocation of HST Flight Operations from GSFC to the Space Telescope Science Institute (STScI) in Baltimore, Maryland. During this phase, the government is contracting with [redacted] to make the necessary facilities and infrastructure changes at the STScI to support the subsequent relocation (phase #2) of HST Flight Controllers to Baltimore. The following activities are those planned to be accomplished by the modifications of the [redacted] contract in phase #1:

1. Creation of a Science Institute Mission Operations Room (SIMOR) within the Muller building at the Johns Hopkins University Baltimore campus.
2. Preparation of the existing STScI computer room in the Muller building for the addition of significant amounts of government-furnished equipment (GFE),
3. Expansion of existing data network equipment and cables with those required to support flight operations, and
4. Hiring the staff necessary to configure, operate, and troubleshoot the GFE'd systems used to conduct the flight operations of HST.

Summary

Overall, Proposal No. [redacted] (total cumulative price [redacted] to the end of the current [redacted] contract option) demonstrates a good understanding on the part of the contractor of the nature and scope of the work desired by the government. The details provided on the proposed facilities changes at the STScI agree well with those worked out in various working group meetings with the government over the last six months. The number and skill mix of the personnel proposed to do the work under this modification are both reasonable and acceptable, but the manpower phasing does not match the government's latest schedule of Flt. Ops. relocation activities. The cost data provided is also close to the government's internal estimates, but a modification to one M&E item is offered. Finally, although the associated dollar amounts are not large, issue is taken with the proposed Director's Discretionary Research Fund (DDRF) and Management Fee expenses.

Direct Labor and Skill Mix

The [redacted] proposes to accomplish the operation and maintenance of the government-furnished Control Center System (CCS) equipment through a subcontract with [redacted] Since [redacted] is currently conducting these services for the HST Project on the systems used to support HST Flight Operations, this decision is viewed favorably by the COTR as a way to reduce both the HST Project's technical and schedule risks associated with conducting this activity from a new location. The manpower level and skill mix proposed is a close match to the government internal

estimates. While it is quite possible for the number of full time employees necessary to accomplish the required functions to drop slightly in FY2002, it is too early to make this decision confidently, so that the flat staffing profile proposed is both reasonable and acceptable. The rest of the phasing plan for the manpower proposed is not in keeping, however, with the best government estimates for the relocation schedule of the primary components of the CCS systems. This is because the CCS deployment schedule for Release 3.2 changed significantly after the receipt of this Institute proposal. The COTR will provide an updated deployment schedule with a recommendation for the rephasing of M&O manpower to both the STScI and to the cognizant Code 441 Resource Analysts.

The COTR notes that the proposed cost of this modification is significantly above the government estimate ([redacted]) provided in the original (3/15/99) Configuration Change Request (CCR) to the [redacted] contract Statement of Work (SOW). The cost increase is principally in the area of increased manpower, but also involves some increase in material costs. These variances from the original estimated cost are explained by the following:

1. There was an increase of [redacted]K for Project-approved modifications to the design of the SIMOR to enhance public relations appeal, and increase physical security.

2. At the time of the original estimate, no sustained period of HST operations from the CCS ground system platform had occurred from which to make O&M labor predictions based upon actual workload experiences.

3. The original estimate was produced very shortly after the programmatic announcement of the October '99 Servicing Mission (SM) 3A Launch-on-Need date. It was therefore undertaken without the benefit of knowing the full impact of SM-3A on either the CCS software release schedule, or on the schedule for the relocation of HST Flight Operations. The CCS delivery schedule at the time was based upon the integrated SM-3 mission targeted for the middle of calendar year 2000. The relocation of Flight Operations was scheduled to take place several months after that mission. The programmatic change in the servicing mission dates forced the generation of a new CCS build-release plan, delaying the implementation of key automation features meant to make the system easier to maintain and operate. The new schedule also determined that a significant CCS system reengineering (introduction of a software front end) would take place only weeks before the scheduled relocation of the first CCS string to the Institute. Under these circumstances, which are contrary to the Relocation IPT's original assumptions, it was deemed prudent to staff CCS Computer Operations personnel around the clock (as is done in the operations area today) rather than just on a single shift.

4. Before the announcement of the SM-3A Launch-on-Need, the Historical Data Load (HDL) of HST satellite engineering data into the CCS mass storage archive (EMASS) by the CCS D (Turbo) String was scheduled to be well underway in calendar year 1999. Due to the priority of the Servicing Mission development work, the hardware and software tailoring of the D-String has been postponed. It is now likely that the D-String will have to be relocated to Baltimore, along with the EMASS, to complete the HDL. This increases the workload requirement on the maintenance and operations staff at the STScI.

Materials and Equipment (M&E)

The proposed purchase of seven personal computers for use by the additional staff in the Computing and Network Services Branch did not take into account computers that are to be provided as government furnished equipment for that purpose. The recommended numbers are:

Four (4) Microsoft NT-based Personal Computers
- 3 for the Computer Operators and
- 1 for the Data Base Administrator

One (1) Silicon Graphics (SGI) workstation for the System Managers

The dollar value quoted for the purchase of the PC systems however, is acceptable. The remaining items in this category (modular furniture, FAX machine, and copier) are also deemed reasonable.

Travel

No allowance for local travel was proposed, as it is understood that any costs incurred in this area will be handled as an incremental expense on the prime contract. In the view of the COTR, there will likely be a need, at least on an interim basis, for Institute-based System Managers to attend meetings at GSFC to establish proper coordination between the two groups on issues relating to configuration control of the operational release of the ground software. The dollar amount of this local travel should not be large.

Subcontracts

The largest value subcontract proposed is that to [redacted] for the augmentation of the Computing and Network Service Branch at the STScI with manpower in the areas of System Management, Computer Operation, Database Administration and Hardware Maintenance. The proposal closely matches the government's estimate of the work needed for the two operational CCS strings that are to be relocated to the STScI. The additional subcontracts proposed with various commercial enterprises in the construction, HVAC, and building supply areas are in full keeping with the modifications desired at the STScI to create the SIMOR as approved by HST Project Management.

Other Direct Costs (ODCs)

The items proposed for the facilities modifications necessary to create the SIMOR and provide the electrical and cooling infrastructure to support it, are restatements of what have previously been extensively reviewed by the government. The total dollar value of $[redacted]K is consistent with the government's estimate of the scope of work required. The COTR notes that proposal subsection 12 of section IVA is incomplete. The figures in this subsection however, since they simply represent the dollar value of government-

furnished items, are irrelevant to the contract modification and so this deficiency can be ignored.

Miscellaneous

The COTR notes that a full [redacted] for the Management Fee has been proposed. Management fee is supposed to reflect reimbursement for NASA's share of the [redacted] administration costs. This amount was predetermined and an approximate [redacted]% of the original contract value was provided to cover these costs. It is not clear that [redacted] administration costs increase due to this, or any contract modification. Therefore, this item is questionable and without further justification should be reduced in negotiations if not completely eliminated. It is also noted that the proposed amount for the Director's Discretionary Research Fund (DDRF) associated with this contract modification is the highest authorized value of [redacted]%. Given the nature of the unspent balance of previously awarded DDRF funds, it is recommended that this value be reduced.

The COTR also notes that the dollar value of the proposal is subject to the revision of [redacted]'s forward pricing rates as a consequence of the corporate reorganization it is currently experiencing. [redacted] and [redacted] have also announced plans for a definitive merger which is detailed in Section 3.1 of [redacted] letter no. [redacted] included in the proposal package. The effect of this activity on the proposal is not clear. Finally, in a footnote on Proposal Summary page, it is noted by STScI that the costs contained in the proposal have not been negotiated with the subcontractor. Though this is the case, it is not expected that this would produce a sizeable cost variance from that which has been proposed.